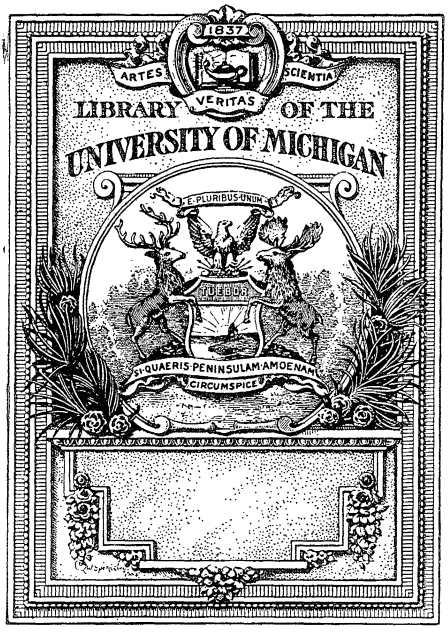
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PIONEER CLIMBING IN A NEW SWITZERLAND

FASCINATIONS AND DANGERS OF MOUNTAIN CLIMBING IN THE CANADIAN ROCKIES AND SELKIRKS

By CHARLES E. FAY

Reprinted, by permission from *The Technical World* Chicago, Illinois, February, 1905

Errata in titl

Page 693 read Mounts Victoria

697 transpose "Cathedral

698 Mt. Vaux (11,000 ft.)

701)
703) read "Takakkaw" for "

MOUNTS STEPHEN, CATHEDRAL, AND VICTORIA.
View from the Pass between Mounts Daly and Niles, Waputehk Group.

Pioneer Climbing in a New Switzerland

Fascinations and Dangers of Mountain Climbing in the Canadian Rockies and Selkirks

By CHARLES E. FAY
President of the American Alpine Club

IT is almost half a century since alpinism received its first strong impulse through the founding of the famous Alpine Club in London, England. During this period, hundreds of thousands of tourists have been attracted to Switzerland by the descriptions of magnificent scenery or by tales of stirring adventure published to the world by the members of that society, or of others patterned after it in many lands. The scaling of seemingly inaccessible peaks has exercised an unparalleled fascination on serious men endowed with a love of adventure; while delight in the grandest spectacles that Nature can offer has brought as worshipers at these shrines a yet greater number of persons content merely to gaze upon "Alpine majesties" and to leave to others their exploration and conquest.

The Canadian Alps

Meanwhile, upon our own continent, there was lying unknown even to our geographers an alpine world still vaster in area and scarcely less impressive. Though its snow-clad peaks do not rise so high above sea as do those of the European Alps, they tower almost equally high above their valleys, and in an infinite variety of architectural forms. Their glacial features are as marked. In exquisitely beautiful lakes and mighty

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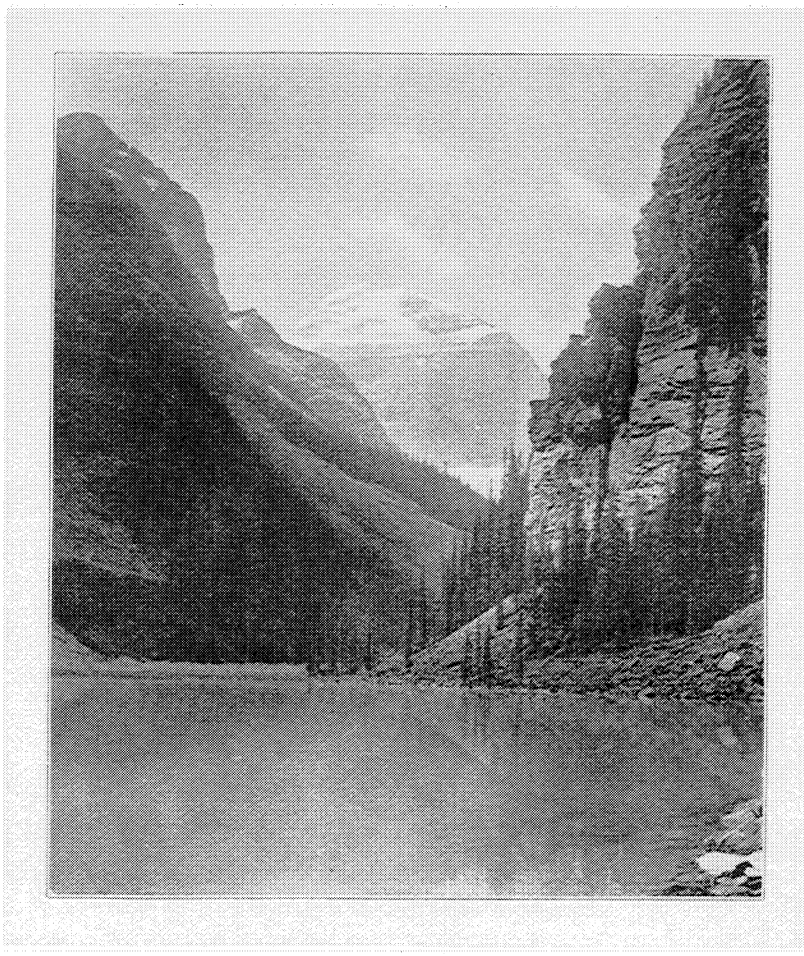
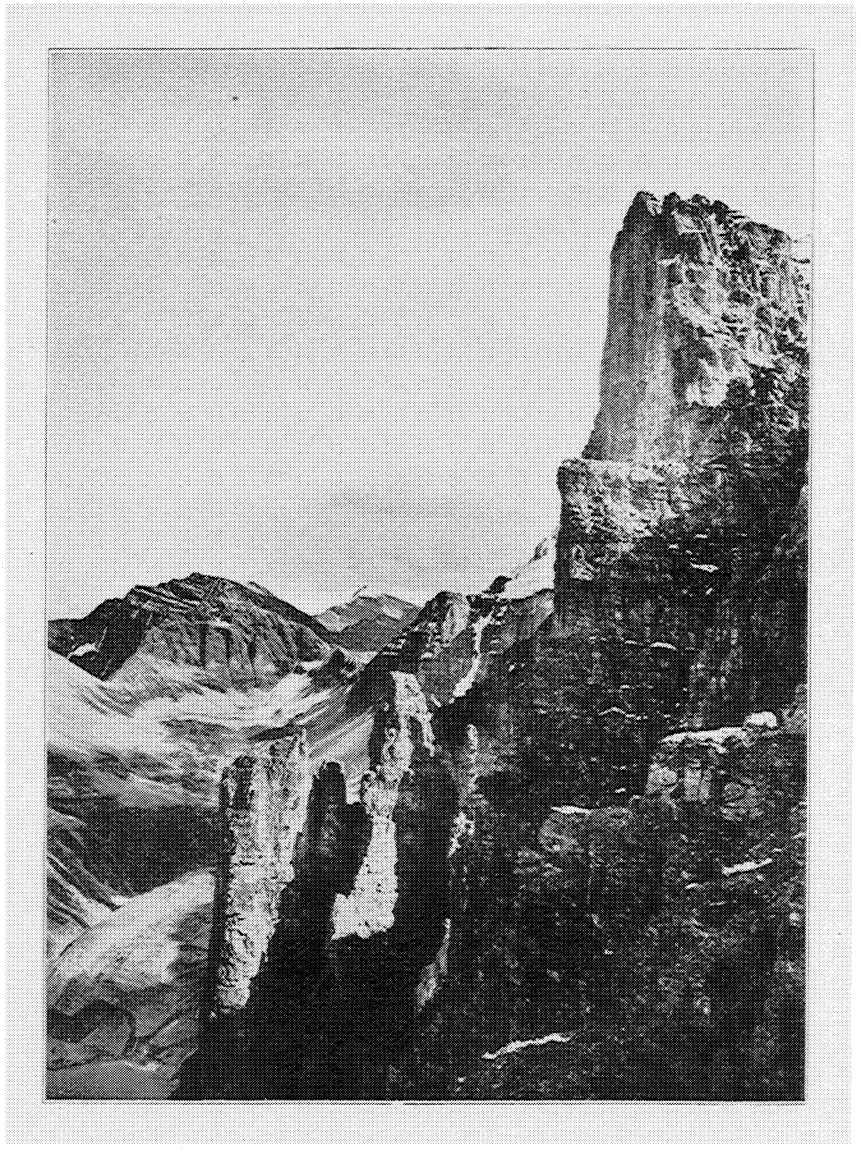


MOUNT LEFROY,
First ascended in 1897.—The cliff is probably 3,000 feet sheer, exclusive of the ice-wall at its top, which is nearly 300 feet additional.—The water is Lake Louise.

cataracts, Switzerland is quite outclassed. Only through the influence of agriculture in developing a less severe type of beauty, does the Swiss landscape regain its prestige.

Only a few explorers had traversed the region up to the time when the demand for a transcontinental line across the Dominion of Canada led to the building of the Canadian Pacific Railway. Fortunately, the most available of the many routes surveyed across the Cordilleran belt proved to be the one that passed through the heart of two of its grandest alpine districts. Entering the mountains by a noble portal through which the Bow river comes forth upon the prairies, the railway follows back along its course, passing through rampart after rampart beneath mountains towering 5,000 feet above the track, until, amid the culminating grandeur of the ice-crowned Bow range, it crosses the main watershed of the continent. Now upon the Pacific slope, it makes its way by a yet wilder valley to the Columbia river, here flowing in a northerly direction. The several ranges thus far crossed form the Canadian Rockies, properly so called; those whose scarcely less impressive peaks occupy the great interior island formed by the strange sweep of the Columbia and Kootenay rivers, are the Selkirks. The two groups taken together may for convenience be called the "Canadian Alps."

In the heart of both these regions, almost wholly uninhabited, the necessity of feeding the passing tourists led to the erection of several excellent hotels; places in a new alpine world, at the present time the most accessible—even to Europeans — of the several regions that are alluring into new fields men no

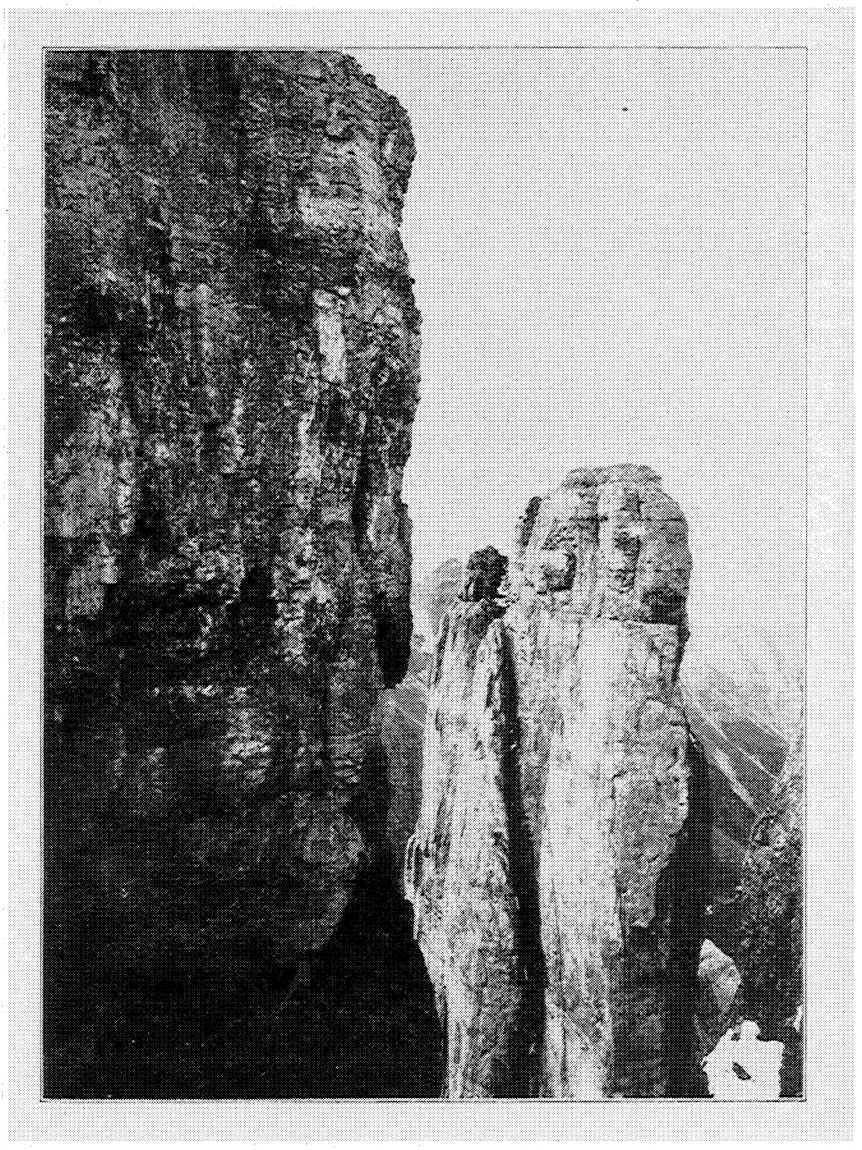


CLIFFS OF "THE BASTION" (10,200 FEET HIGH).
The glacier and a lakelet of Consolation Valley lie at its base.—The remarkable architecture of the peak is characteristic of the friable limestone and quartzite of the Canadian Rockies.

hence the seekers after the grandest in the way of scenery need no longer cross an ocean to enjoy it; and American lovers of the strenuous sport of mountaineering have at hand sojourning longer satisfied with repeating the ascents of grand peaks grown hackneyed. And what a joy the pioneer work of detailed exploration of these wild valleys and soaring summits has been to those

of us who were among the first upon the ground, and whose devotion has brought us with each subsequent summer to scale new peaks and discover new splendors

avansaries with every modern convenience, have been our headquarters for successful assaults upon neighboring giants, or our base of supplies for camp-



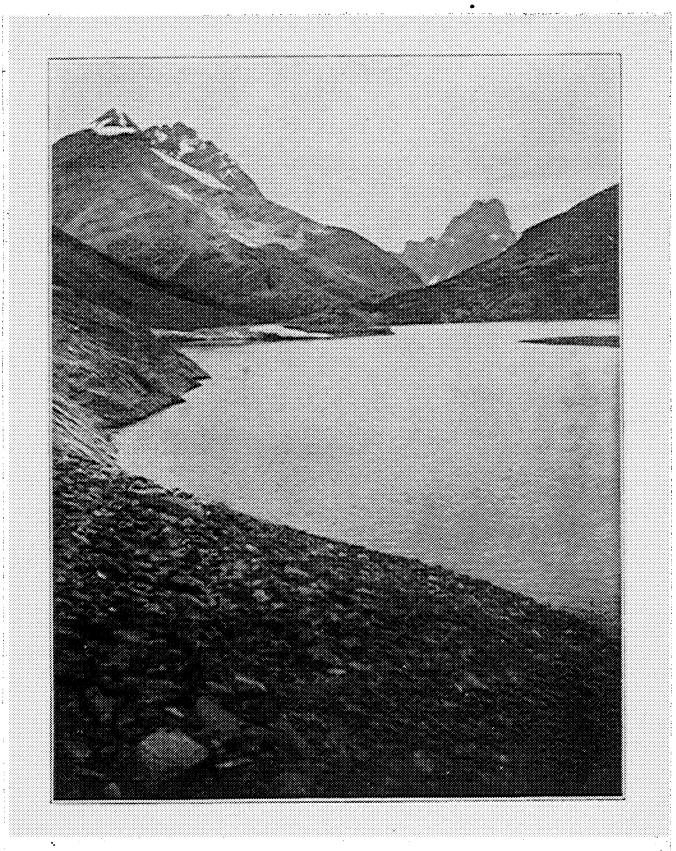
EIFFEL PEAK.
Another typical example of rock forms in the Canadian Rockies.

in the way of unsuspected glaciers, sapphire lakes, and waterfalls whose plunge is comparable only with the highest cataracts of the known world! The hotels, which we have seen transformed from railway lunching stations into great car-

ing trips in campaigns against peaks more distant from the haunts of men.

The beautiful hotel at Lake Louise, which, though year by year enlarged, still cannot keep pace with the increase in numbers of those who come to look

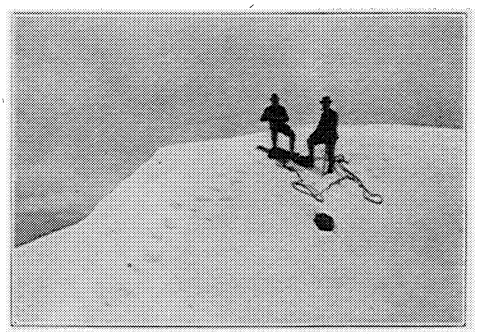
upon its matchless panorama, was a little chalet of eight rooms when it furnished the base for our attacks upon the formidable peaks of Lefroy and Victoria, both conquered but a day apart in the summer of 1897. Until that season, no Swiss guide had led parties among these Alps, whose perils, nevertheless, are of the same nature as those which annually prove disastrous to so many more or less careless or ignorant climbers in Switzerland. Possibly we who relied upon knowledge won in years of experience among the widely different difficulties of Appalachian peaks, presumed too far, and unconsciously assumed risks which only a happy fortune prevented from ending in disasters. Better instructed now after several seasons, with our reliable guides, we may admit our temerity in those first years.



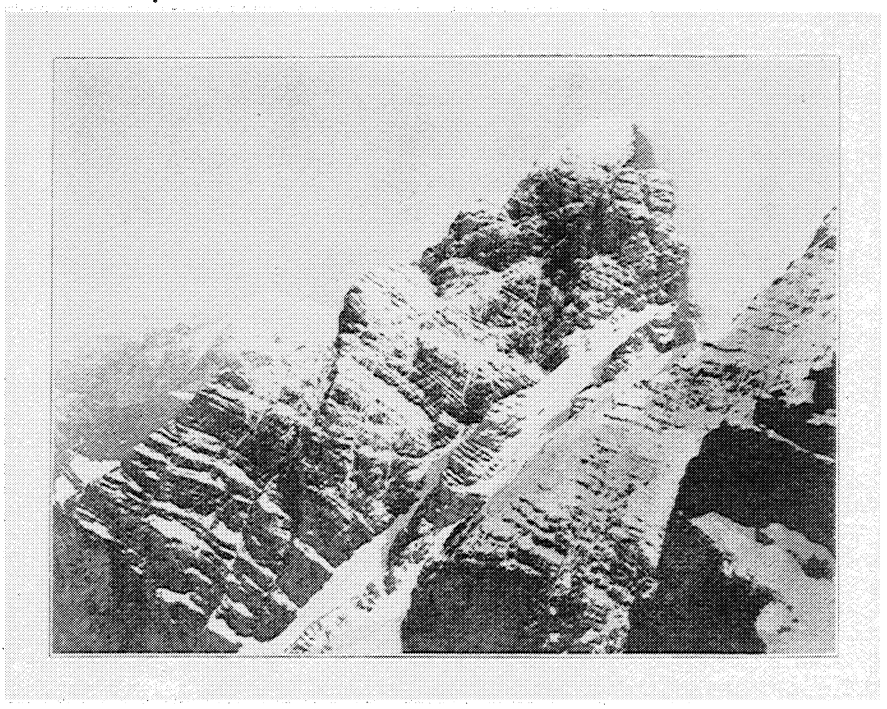
LAKE MCARTHUR, IN THE CANADIAN ROCKIES.
This beautiful sheet—its water an exquisite sky-blue tint, lies in a rock basin, 8,000 feet above the sea and almost above vegetation.—The summit on the left is Cathedral Peak. In the background on the right is Mount Odaray.

A Thrilling Moment

What an experience was that of 1894 in a day's ramble about the base of the soaring obelisk of Mount Sir Donald, the so-called "Matterhorn of the Selkirks." Rebuffed by its steep cliffs, we turned in mid-afternoon to scale its lesser neighbor, Eagle Peak. Approaching night found us still below its summit, and face to face with the impossible. To descend as we had come up was our only alternative; but, not intending to return by this face of the mountain, we had not taken measures to mark our way over the narrow shelves and short precipitous declivities. At the very beginning of our descent, in repassing an angle in the cliff we had just now rounded with some difficulty, came a moment of terrible suspense. My only companion, a dear friend of many a mountain ramble East and West, was a man of stout proportions, far heavier than I. More pliant to the demands of the protruding rock,



ON THE SUMMIT OF MOUNT GOODSIR
(nearly 12,000 feet high).
First ascended in 1903.—The snow to the left of the footprints is a "cornice" overhanging a precipice nearly 6,000 feet high.



NORTH TOWER OF MOUNT GOODSIR.—MOUNT VAUX (10,000 FEET) IN BACKGROUND.
Peaks of the Ottertail Range West of the Divide.

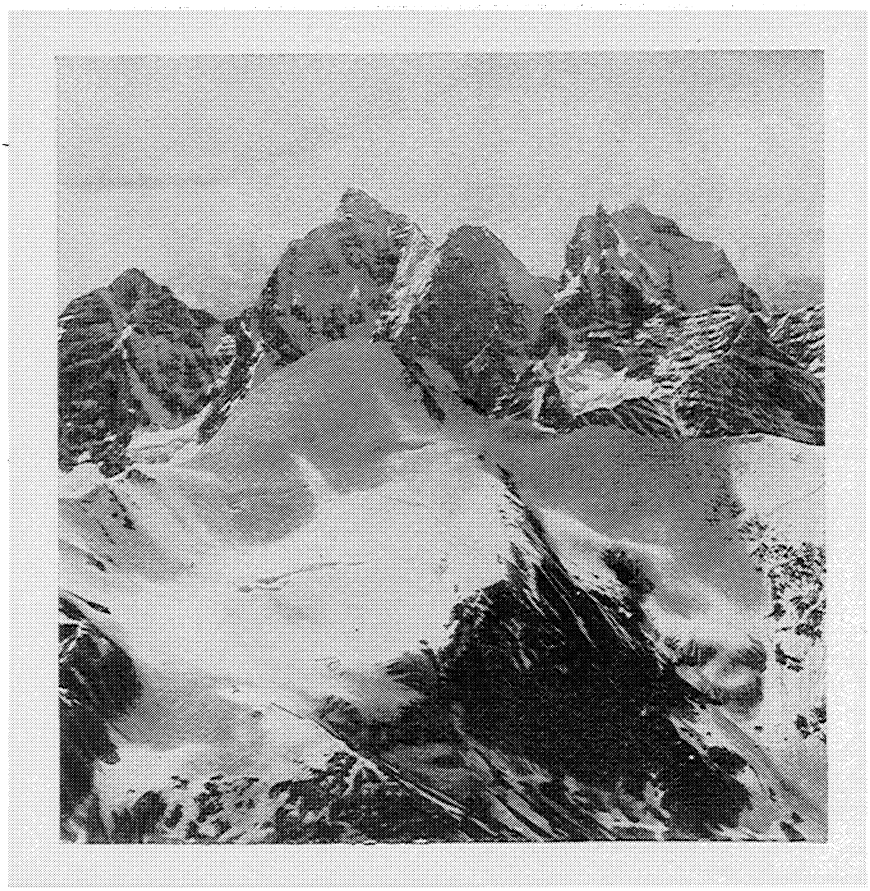
I had easily passed around its obtrusive angle upon a narrow shelf—yet even this discontinuous at the very turn. My companion stood now at this critical point, with one foot on either side, grasping hand-holes safe yet wide apart. In endeavoring to swing himself past the turning point, the pressure grew serious. To my dismay, I heard him say: "I must let go." Below was a precipice of at least five hundred feet, ending at the glacier. Helpless to assist him by any material aid, I could only say with feigned calmness and encouragement: "Oh, no! you are not going to let go." To my infinite relief, he that moment passed the crucial point and stood beside me again in safety.

Trapped for a Night

It is a curious fact in psychology that at such moments—when much remains to be done—there is no time to yield to emotions. We had used up considerable of our scant time, and it was growing dusk. Each yard of distance must be covered with caution, hovering, as we were, above an abyss. With all our efforts, darkness overtook us while astride of an angular rock over which we were passing. A night on horseback in this fashion was too little promising! A careful reconnoissance disclosed just below us a shelf some seven feet wide, standing out from a sheer wall that towered above it. Almost as sheer were the hundreds of feet from its margin down to the glacier. A crevice just wide enough to receive us both ran across it from wall to edge. It was safety and comfort compared with our late equestrian situation, and here we passed the night. At the Glacier House, now 3,000 feet below us but invisible (indeed no remotest suggestion of humanity could be seen from our desolate eyrie), we had slept the preceding night under two heavy blankets. Now we had not a wrap of any sort. For food, we had the meager remnants of our day's luncheon, and no water. With kindly charity, my mate made me the sharer of his greater bodily warmth, and I sat holding him close against me like a down pillow. The moon rose soon over the superb pyramid

of Sir Donald just across the glacier, which was flooded with its light. What would have been an oppressive silence, was broken by the dash of distant waterfalls, or the more ominous crash of loosened rocks or masses of ice from the hanging glacier on the great peak opposite. If only we were safe from such cloud-wreaths in reflecting the rose and lemon tints of breaking day, while a stern multitude of giant peaks took on a momentary flush of kindliness. It was a sight never to be forgotten.

We now turned to finding our way out of the strange trap in which we were taken. Five hours of search—now be-



MOUNT GOODSIR, CANADIAN ROCKIES (11,671 FEET HIGH).

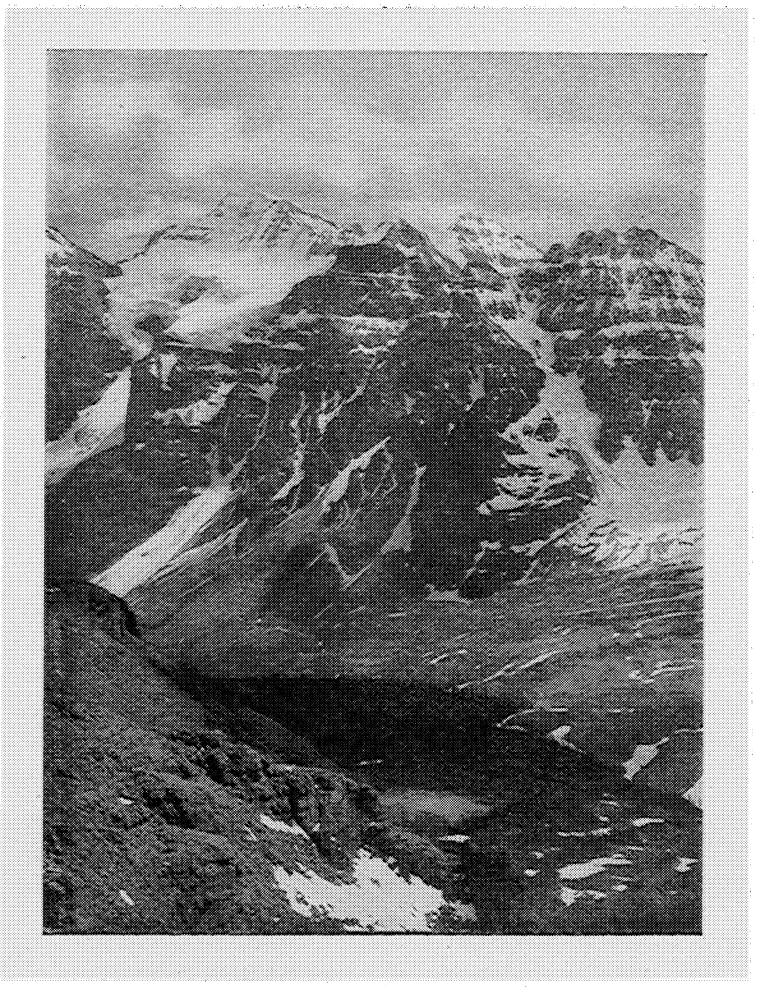
First ascended by Prof. Fay and party, July 16, 1903.—The highest peak visible from the line of the Canadian Pacific Railway.

assaults, we could make a tolerably comfortable night of it. Indeed, from time to time, my comforter would give forth slumberous tones, wherefore I felt justified in clasping him the more tightly.

But the longest night ends. It does not, however, always compensate for its tedium by yielding to such a sunrise as it was our privilege to witness, when the vast expanses of the Illecillewaet and Asulkan glaciers vied with the fleecy low, now above—gave us no clew. At length the narrow ledge by which we had come around our arête was revealed within twenty feet of where we had passed the night; and a rapid descent brought us back to the hotel in advance of the rescue party kindly sent out in our behalf.

But with the introduction of expert guides, of whom the railway company brings over six or eight for each season,

such episodes are out of date, as well as those of another sort, in preventing which more experience on the part of our climbers is also a factor. Such a one was that which befell a member of our party in 1897, our Anglo-American combination, the English contingent of which had brought over Peter Sarbach, the first of Alpine guides to visit this region. We had scaled Lefroy, and, in the good Queen's jubilee year, the noble peak of Mount Victoria, and now were assaulting a lofty summit springing from the great Waputehk snow-field. It was the first time its expanses on the eastern side of the Great Divide, which it swathes with its vast blanket of ice, had ever been pressed by human feet. Aiming at Mount Balfour, we had found ourselves instead upon Mount Gordon—so called after the family name of Lord Aberdeen, then Governor-General of Canada. This mountain rises in a long ridge on whose crest the watershed runs northward from the summit first attained. The high dome in which it ends had attracted us as a better station for surveying purposes, and four of our party of nine started for it over the perfectly safe ice that lay between.



MOUNT FAY, CANADIAN ROCKIES (10,637 FEET HIGH).

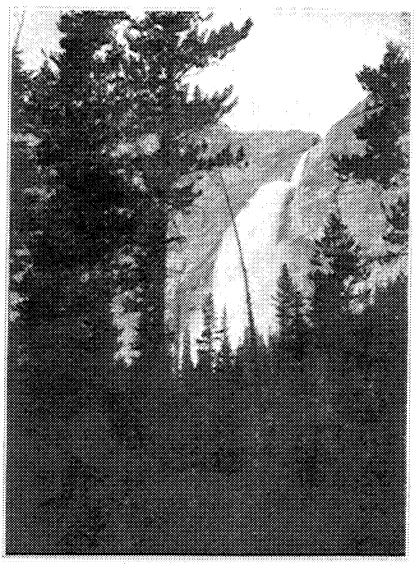
First ascended by an Englishwoman, July 20, 1904.—Approached from the exquisitely deep blue Moraine Lake, lying in the "Valley of the Ten Peaks," formerly known as "Desolation Valley." These summits generally rise in craggy peaks along a great wall of rock here forming the ridge-pole of the continent. Mount Fay, third in order of height, is the snow-clad peak in the left background.

MOUNT GOODSIR, FROM THE SOUTH.
From the summit, the view northward includes the valley traversed by the Canadian Pacific Railway, lying 8,000 feet below.

A Narrow Escape

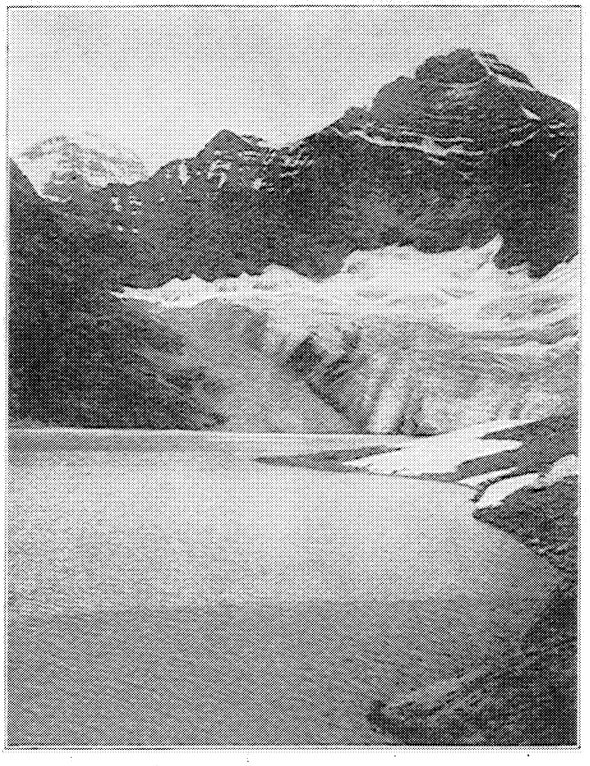
Just before reaching the top of the dome, a long crevasse intercepted our course. Its extremity was bridged with snow, perfectly safe to cross for a roped party—which we were not. It would have been the part of wisdom to make the short detour necessary to pass entirely beyond this snow bridge; but, after testing its strength with an ice-axe, it was deemed safe to cross it. The leader lay flat and "swarmed" across it—a motion between a swim and a wriggle. The second followed suit; the third jumped the thinner part; the last, however, whose attention had been diverted, supposed that his predecessor had walked across, and started to do the same. In the very middle, he broke through; but his ice-axe, held horizontally, caught on the surface and supported him. Had he simply clung to it, all would have been well. But, while two of us were seeking to secure a hold upon the straps of his rucksack, by which we could at least have held him indefinitely, our third offered him his ice-axe to grasp. To do so, he relaxed his hold upon his own. The sudden strain upon the other wrested it from the grasp of its holder, and with it our companion instantly vanished from our sight. It was impossible to approach the aperture he had made in the treacherous bridge in order to look down. No sound came from the gulf that had so suddenly swallowed him. Our shouts attracted the attention of the balance of the party, already following us but still nearly half a mile away. With them was Sarbach, with fully two hundred feet of Alpine rope. On they came at full speed, the guide in advance; but every minute seemed an age. A voice was heard—doubtless from one of them. Then another silence, unbroken unless from the beating of our hearts, dismayed at the dreadful consequences of our incaution. Again the voice! and to our infinite relief, came the discovery that it arose from beneath, and had in it a touch of vexation: "Can you not get me out soon? It's awfully cold and nasty down here." No earthly symphony could have sounded sweeter. Our companion was alive, and to our amazement, unhurt! Absence of breath, suddenly lost in the shock as he became jammed in the ice where the two walls of ice drew together, had kept him so long silent.

The others of our party were soon assembled at the crevasse. A friendly emulation as to who should be lowered to



TAKAKKAN FALL, (NEARLY 1,200 FEET HIGH).
View taken on a hot day, when a vast volume of water is descending from the melting ice of an extensive glacier.—Fall discovered in 1897.—Its sources and upper end first visited by Prof. Fay and party in 1903.

the rescue, ended in our deferring to Dr. J. Norman Collie, of London, by all means the most able alpinist of our number. In his recent interesting volume, "Climbs and Exploration in the Canadian Rockies," Doctor Collie tells the remainder of the story as follows:

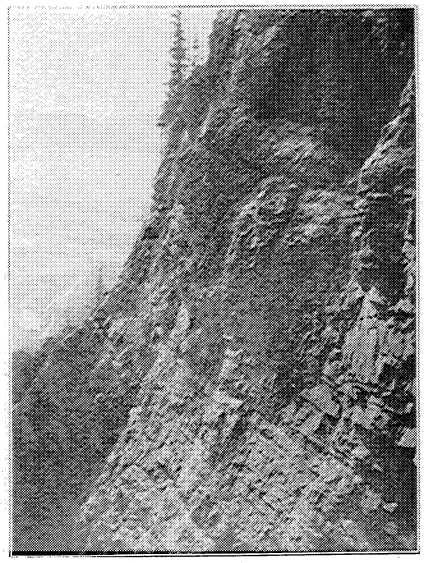


LAKE MCARTHUR, LOOKING TOWARD THE BOW RANGE.
A considerable glacier enters at its upper end, visible through the intensely blue water. Fragments break off and float as miniature icebergs. Prof. Fay and party found this lake frozen solidly over, on July 27, 1902.—The peak at the right of the picture is that of Mount Biddle, 10,000 feet high.

"It was not until I had descended sixty feet . . . that I at last became tightly wedged between the two walls of the crevasse, and was absolutely incapable of moving my body. My feet were close to Thompson's, but his head was . . . about three feet lower than his heels. Face downwards, and covered with fallen snow, he could not see me. But, after he had explained that it was entirely his own fault that he was there, I told him we would have him out in no time. At the moment, I must say, I hardly expected to accomplish anything. For, jammed between the slippery walls of ice, and only able to move my arms, cudgel my brains as I would, I could not think what was to be done. I shouted for another rope. . . . I managed to throw one end of it to Thompson's left hand. . . . But when pulled, it merely dragged out of it. Then, with some difficulty, I managed to tie a noose on the rope by putting both my hands above my head. With this, I lassoed that poor, pathetic arm, which was the only part that could be seen. Then came the tug of war. If he refused to move, I could do nothing more to help him; moreover, I was afraid that at any moment he might faint. Slowly the rope tightened . . . at last he began to shift, and he was pulled into an upright position by my side. To get a rope around his body was of course hopeless. . . . I tied the best jamming knot I could think of round his arm, just above the elbow. A shout to the rest of the party and he went rapidly upward till he disappeared round the bulge of ice forty feet or more above. Most marvelously no bones had been broken; but how anyone could have fallen as he did, without being instantly killed, will always remain a mystery."

But it is not our purpose to exaggerate the dangers of perhaps the noblest of sports. Let us remember that, while an alpine peak cannot be trifled with, never-

BIVOUAC ABOVE GORGE OF YOHO CANYON.
Too steep for a couch, the guides built a huge scaffolding out into the air, on which the nearest figure is seated.



THE "CLIFF PATHWAY."
Traversed unroped, by party descending from top of great Takakkan fall in 1903.—Glaciers in the background.

theless, under proper guidance and due deference to the voice of experience, mountaineering may be pursued with no more risk than almost any other of the more athletic sports. Since the coming of the Swiss guides, no serious accident has attended the scaling of any one of the many noble peaks that have yielded to the climber's prowess. Year by year, the superb peaks of the first order within a few days' access from the railway have gradually been ascended, until now scarcely one remains. A wider trip afield must be taken, with the necessary struggle with pathless forests and almost impassable gorges, before the bases of several grand peaks as yet unscaled can be reached—doubtless the more arduous part of the undertaking. No one, however, can doubt that the rising generation contains a conqueror for each one of them.

DIGGING SITE FOR UNDERGROUND OF AN OFFICE BUILDING.

Underground New York

A Subterranean World of Marvelous Mechanical Installations and Bustling Activity of which the Ordinary Citizen Has Little Conception

By WILLIAM R. STEWART

Editorial Staff, *Cosmopolitan Magazine*

THE great buildings of New York, which in bewildering sequence rear their daring summits skyward, have produced a city underground of which the visitor to the metropolis sees nothing, and of which the average New Yorker himself has little idea. But if New York could be uncovered, what a spectacle would be revealed! Tiers of sub-stories extending to a greater depth than the bed of the F st River, would dot all the Lower City; batteries of boilers in every block, with explosive energy sufficient to wreck the metropolis, would frown gloomily from the rock-excavated depths; sewers, with their waste and rainfall of a great city, would dry their dank sides in the sunlight; and everywhere huge water and gas mains, pneumatic tubes, telegraph and telephone conduits, and pipes of all sizes, would twist and coil like so many giant pythons in an eastern jungle.

A City's Vitals

It is the very vitals of the city which are below the pavement. There life throbs in every piston thrust, in the hum and buzz of dynamos and fans and the roar of furnaces. The "sky-scrapers" must have their bases well fastened in the earth; and to care for them, there has been evolved a new type of sub-cellar dweller with whom the person who lives overground has not yet had time to familiarize himself. As many as 200 to 300 employees work entirely underground in many of New York's great buildings at the present time. Numbers of these live forty, fifty, and sixty feet below the pavement, where are located the great boilers and engines that furnish the 2,000- or 3,000-horse-power energy which is required to run the elevators, filter and heat the water, make the ice, and perform the other functions of a well-conditioned twentieth century structure.

For six days in the week, sunshine and daylight are strangers to these toilers of the depths. Far over their heads the rattle of the streets is drowned by iron-cased